RED ROCK LAND AND WATER COMPANY (PWS 2350025)
SOURCE WATER ASSESSMENT FINAL REPORT

March 18, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the spring and aquifer characteristics.

This report, *Source Water Assessment for Red Rock Land and Water Company, Lewiston, Idaho,* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Red Rock Land and Water Company drinking water system consists of one spring. The spring is located approximately 1 mile north of Highway 95 near the City of Lewiston. All of the water from the spring is chlorinated and stored in a 6,000-gallon storage tank. The system currently serves 60 people through 27 connections.

Final spring susceptibility scores are derived from equally weighting potential contaminant inventory/land use scores and adding them with system construction scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. Potential contaminants are divided into four categories: IOCs (e.g., nitrates, arsenic), VOCs (e.g., petroleum products), SOCs (e.g., pesticides), and microbial contaminants (e.g., bacteria). As a spring can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, the Red Rock spring rated low for all potential contaminant categories: IOCs, VOCs, SOCs, and microbial contaminants. The predominant range land use of the area and the system construction that protects the spring water from the atmosphere reduced the overall susceptibility of the system.

No SOCs or VOCs have ever been detected in the spring. Trace concentrations of the IOCs antimony, fluoride, lead, and nitrate have been detected in tested water, but at concentrations significantly below maximum contamination levels (MCLs) as set by the EPA. Sodium, a unregulated chemical, was also detected at low levels in the drinking water system. Alpha and beta particles (radionuclides) have been detected in the system at levels below the MCLs. Total coliform bacteria have been detected in the system from 1996 to 1999 but no confirmatory detections have occurred.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Red Rock Land and Water Company, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 100-foot radius perimeter clear of all potential contaminants from around the spring. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated protection areas are outside the direct jurisdiction of the Red Rock Land and Water Company drinking water system, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus on any drinking water protection plan as the delineation may contain some urban and residential land uses. Public education topics could include proper lawn care practices, household hazardous waste disposal methods, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there is a transportation corridor through the delineation, the Idaho Department of Transportation should be involved in protection activities.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific bet management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR RED ROCK LAND AND WATER COMPANY, LEWISTON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the EPA to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the spring and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Red Rock Land and Water Company drinking water system consists of one spring. The spring is located approximately 1 mile north of Highway 95 near the City of Lewiston. All of the water from the spring is chlorinated and stored in a 6000-gallon storage tank. The chlorinator is half a mile below the spring and the tank is located on the adjoining hillside. The system currently serves 60 people through 27 connections (Figure 1).

No SOCs or VOCs have ever been detected in the spring. Trace concentrations of the IOCs antimony, fluoride, lead, and nitrate have been detected in tested water, but at concentrations significantly below MCLs as set by the EPA. Sodium, a unregulated chemical, was also detected at low levels in the drinking water system. Alpha and beta particles (radionuclides) have been detected in the system at levels below the MCLs. Total coliform bacteria have been detected in the system from 1996 to 1999 but no confirmatory detections have occurred.

Defining the Zones of Contribution – Delineation

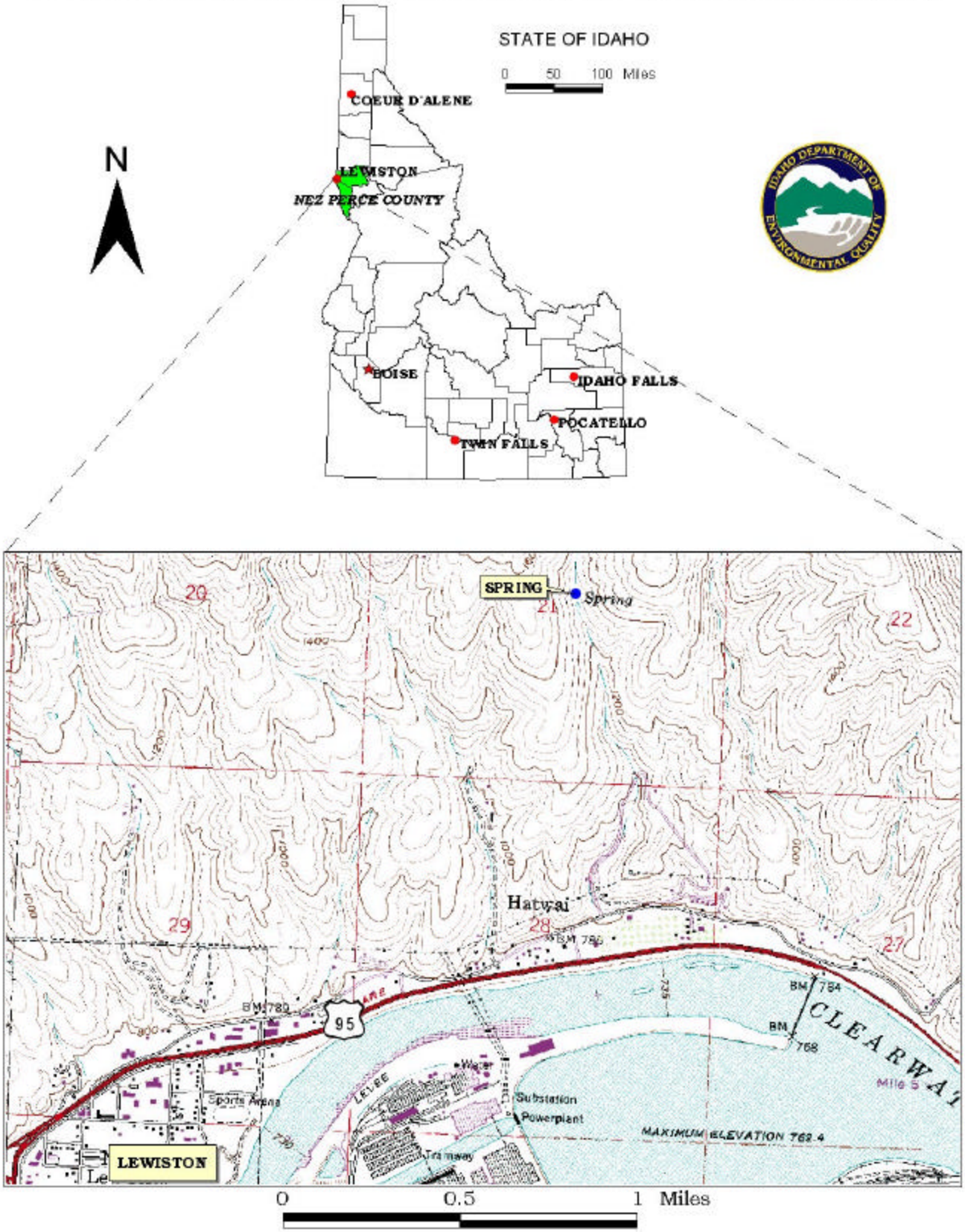
The delineation process establishes the physical area around a spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a spring) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineation using a method of surface mapping of hydogeologic features approved by the EPA in determining the 3-year (Zone 1B) TOT zone for water in the vicinity of the Red Rock Land and Water Company spring. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including operator input, local area well logs, and hydrogeologic reports (detailed below).

The conceptual hydrogeologic model for the Red Rock Spring source north of the Clearwater River in Lewiston, Idaho is based on interpretation of available well logs. The source well logs indicate water is derived from basalt. Based upon geologic map interpretations and model layer delineations in Wyatt-Jaykim (1994), the basalt at the toe of the Lewiston Grade, in North Lewiston, is in the Grande Ronde Basalt. Therefore the spring is also assumed to be in basalt.

The ground elevation is approximately 1,400 feet above mean sea level (AMSL). Discharge from the Red Rock Spring ranges from about 20 to 50 gallons per minute (gpm).

Major faults, aniclinal folds, and a major topographic divide (the Blue Mountains) have been assumed by various parties (EPA, 1988; Wyatt-Jaykim, 1994) to form the regional impermeable boundaries of the Lewiston Basin Deep Aquifer. To the north, the aquifer is bounded by the Clearwater Escarpment, commonly referred to as the Lewiston Hill. Faults at the toe of Lewiston Hill include the Vista and Wilma faults. These faults are assumed to be no-flow boundaries.

FIGURE 1. Geographic Location of Red Rock Land & Water Company



Based on the geologic and topographic maps, there are no boundaries surrounding the spring within its drainage basin. The spring is located in a draw, which is located at a higher elevation than the Clearwater River. Elevations lower than the spring are not believed to contribute water; therefore, the Red Rock Spring should have no hydraulic response to the river because it is approximately 250 feet above the river level.

An impermeable boundary along the Vista and Wilma faults was delineated, as per the conceptual model of EPA (1988) and Wyatt-Jaykim (1994). The source document for accurate location of the faults represented is Rember and Bennett (1979).

The Clearwater and Snake Rivers are modeled as constant head boundaries (linesink). An alternative (Trial) conceptual model, treating the Clearwater River as a gaining linesink is also tested as a better boundary condition for the Red Rock Spring.

Because representing stream geometry is more important in the near field than in the far field (EPA, 2000), the Clearwater River and Snake River are represented with two separate linesink elements that abut at the confluence. This allows more accurate placement of the constant head endpoints in the near field (head is linearly interpolated between endpoints).

In the Trial Model, a constant head boundary was placed about 24,860 feet (~ 7,580 meters) south of the sources to give the model a reference head and to establish a ground water flow gradient, which allowed for a fair model calibration. The location and elevation of the constant head were determined based on the gradient indicated by test points.

A component of vertical recharge into the Grande Ronde is assumed to exist in this basin because the basalts overlying the Grande Ronde are laterally discontinuous as a result of the many rivers which have downcut into the Grande Ronde forming canyons (EPA, 1988), and because the interbed (comprised of clay and saprolite) which forms the top of the Grande Ronde is believed to allow vertical percolation (EPA, 1988).

Precipitation is 13 inches per year (in/yr) in Lewiston-Clarkston, whereas higher elevation areas average close to 25 in/yr (Cohen and Ralston, 1980). A modeling effort documented by Wyatt-Jaykim (1994), concluded on the basis of available data that 1 to 2 in/yr is a conservative estimate for recharge to the basalt aquifers in the vicinity of Lewiston and Lewiston Orchards. This ignores irrigation losses that would contribute to recharge of the basalts overlying the Grande Ronde in the vicinity of the Lewiston Orchards.

The Best Model is chosen over the Trial Model because it provides a more conservative capture zone for the Red Rock Spring than does the Trial Model. The capture zone for the spring is adjusted to reject pathlines coming from the downhill in the topography (an artifact of modeling the spring as a well).

Nearby wells were used for test points in the WhAEM simulations. Information on test points was obtained from a search of the Idaho Department of Water Resources database available on the Internet. The locations of the test points are limited to information supplied on well logs, typically the quarter-quarter section (0.25 $mile^2$). Therefore, the accuracy of the test point elevation and the static water elevation is dependent upon the accuracy of the driller's log and the topographic relief in the quarter-quarter section.

The capture zone delineated herein is based on limited data and must be taken as a best estimate. If more data become available in the future this delineation should be adjusted based on additional modeling incorporating the new data. The WhAEM model is used to delineate the capture zone.

The delineated source water assessment area for the spring of the Red Rock Land and Water Company system can best be described as a northward trending corridor that extends from the spring up the draw for approximately one-half mile (Figure 2). The actual data used by the University of Idaho in determining the source water assessment delineation areas is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area and the surrounding area of the Red Rock Land and Water Company spring is predominantly open range.

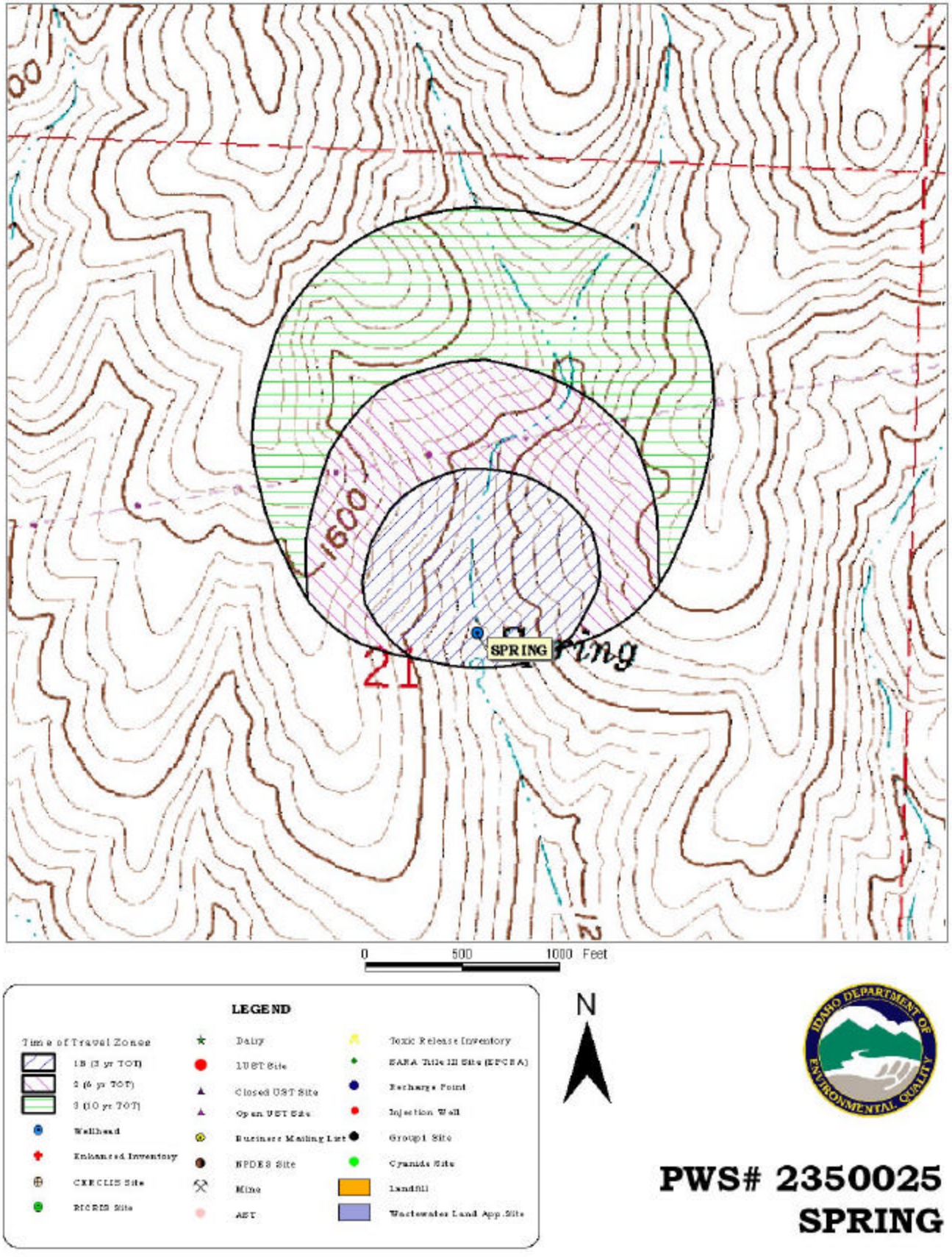
It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply spring.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in November and December 2002. The first phase involved identifying and documenting potential contaminant sources within the Red Rock Land and Water Company source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area. In addition, DEQ personnel using global positioning system (GPS) equipment verified the location of the spring.

The delineated source water assessment area of the spring of the Red Rock Land and Water Company contains no potential contaminant sources (Figure 2 below).

FIGURE 2. Red Rock Land & Water Company Delineation Map and Potential Contaminant Source Locations



Section 3. Susceptibility Analysis

A spring's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: construction, land use characteristics, and potentially significant contaminant sources. The higher the ranking the system receives in any of the considerations or in the total susceptibility of the system, the more vulnerable the system is to contamination. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Spring Construction

Spring construction scores are determined by evaluating whether the spring has been constructed according to Idaho Code (IDAPA 58.01.08.04) and if the spring's water is exposed to any potential contaminants from the time it exits the bedrock to when it enters the distribution system. If the spring's intake structure, infiltration gallery, and housing are located and constructed in such a manner as to be permanent and protect it from all potential contaminants, is contained within a fenced area of at least 100 feet in radius, and is protected from all surface water by diversions, berms, etc., then Idaho Code is being met and the score will be lower. If the spring's water comes in contact with the open atmosphere before it enters the distribution system, it receives a higher score. Likewise, if the spring's water is piped directly from the bedrock to the distribution system or is collected in a protected spring box without any contact to potential surface-related contaminants, the score is lower.

In 1890, Army Colonel Armstrong purchased land and in 1901 developed the Red Rock spring for his own use and to sell water to irrigate at a planned vineyard. In 1927, Elmer Imthurn's father purchased this spring and made some informal agreements with neighbors to share the water and system maintenance costs. Currently, the Imthurn family owns the spring and the land surrounding it.

The spring is a hand-dug tunnel 7 feet tall by 7 feet wide that extends back into a barren hillside 165 feet. This tunnel originally began at the toe of the hill near the bottom of a major draw. In 1979, the Imthurn family constructed a concrete wall to replace the wooden wall at the spring box and extended the system's intake, with drain tiles, about 20 feet further along the toe of the draw. The family also buried everything under 15 feet of rock and earth. Several two-inch lines of schedule 40 PVC pipe deliver the water from where the drain tile ends to the spring box. Surface runoff is diverted above the spring area.

The Red Rock Spring has a moderately susceptible system construction. According to the 2000 sanitary survey, the water from the spring is never in contact with the atmosphere. The intake is constructed to code and the land is owned and maintained properly by the Imthurn family. An area about 100 feet by 300 feet has been fenced for over 60 years.

Potential Contaminant Source and Land Use

The potential contaminant source and land use of the Red Rock Spring rated low for IOCs (e.g. nitrates, arsenic), VOCs (e.g. petroleum products, chlorinated solvents), SOCs (e.g. pesticides), and microbial contaminants (e.g. bacteria). The limited number of contaminants within the delineation and the predominant open range land use of the area make the spring less susceptible to contamination.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the spring will automatically give a high susceptibility rating to a spring despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 100 feet of the source then the spring will automatically get a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. The Red Rock Land and Water Company Spring has low susceptibility to all potential contaminant categories.

Table 1. Summary of Birch Creek Culinary Water System Spring Susceptibility Evaluation

Susceptibility Scores[1]									
Source	Potential Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Spring	L	L	L	L	M	L	L	L	L

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The Red Rock Land and Water Company drinking water system consists of one spring. The spring is located approximately one mile north of Highway 95 near the City of Lewiston. All of the water from the spring is chlorinated and stored in a 6000-gallon storage tank. The chlorinator is half a mile below the spring and the tank is located on the adjoining hillside. The system currently serves 60 people through 27 connections (Figure 1).

In terms of total susceptibility, the Red Rock spring rated low for all potential contaminant categories: IOCs, VOCs, SOCs, and microbial contaminants. The predominant rangeland land use of the area and the system construction that protects the spring water from the atmosphere reduced the overall susceptibility of the system.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Red Rock Land and Water Company, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 100-foot radius perimeter clear of all potential contaminants from around the spring. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated protection areas are outside the direct jurisdiction of the Red Rock Land and Water Company drinking water system, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. As there are some urban and residential land uses within the delineation, a strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, mlharper@idahoruralwater.com, Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Cohen, P.L. and Ralston, D.R.; 1980; Reconnaissance study of the "Russell" Basalt aquifer in the Lewiston Basin of Idaho and Washington, Research Technical Completion Report, Idaho Water Resources Research Institute, University of Idaho, 164p.

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Appendix A

Red Rock Land and Water Company Susceptibility Analysis Worksheet

Susceptibility Analysis Formulas

Formula for Spring Sources

The final spring scores for the susceptibility analysis were determined using the following formulas:

1. VOC/SOC/IOC/ Final Score = (Potential Contaminant/Land Use X 0.6) + System Construction

2. Microbial Final Score = (Potential Contaminant/Land Use X 1.125) + System Construction

Final Susceptibility Scoring:

0 - 7 Low Susceptibility
8 - 15 Moderate Susceptibility
≥ 16 High Susceptibility

Spring Water Susceptibility Report Public Water System Name : RED ROCK LAND AND WATER COMPANY Spring # : SPRING

Public Water System Number 2350025 12/26/02 10:26:57 AM

1. System Construction		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source		0
Yes = spring developed to collect water from beneath the ground; lower score No = water collected after it contacts the atmosphere or unknown; higher score	YES	
Total System Construction Score		1

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	YES	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		0	0	0	0
3. Final Susceptibility Source Score		1	1	1	1
4. Final Spring Ranking		Low	Low	Low	Low